

Cosmic Origins Program Analysis
Group Report
Astrophysics Advisory Committee
Meeting – October 2017

Paul Scowen
(COPAG EC Chair)

COPAG EC Membership

Paul Scowen (Chair, APAC Member)

Lee Armus

Suvi Gezari

Matt Greenhouse ~

Mary Elizabeth Kaiser ~

Joseph Lazio *

Paul Lightsey

Pam Marcum ~

Tom Megeath

John O'Meara

Claudia Scarlata

Sarah Tuttle

Arizona State University

Caltech

University of Maryland

NASA/Goddard Space Flight Center

Johns Hopkins

NASA/JPL

Ball Aerospace

NASA/Ames

U.Toledo

St. Michael College

U. Minnesota

U. Washington

Mario Perez (Executive Secretary, Ex-Officio)

Eric Tollestrup (Ex-Officio)

Susan Neff (COR Program Office, Ex-Officio)

Erin Smith (COR Program Office, Ex-Officio)

NASA HQ

NASA HQ

NASA/GSFC

NASA/GSFC

~ Members rotating off in Fall 2017; Greenhouse in Jan 2018

* Joe Lazio has agreed to extend by 1 year to facilitate new SIG3 leadership structure

COPAG Activities Since July

- Many COPAG EC members continued to be active contributors to the STDT exercises
- Dear Colleague Letter went out on Sept 26 to fill 3 positions on COPAG EC – deadline for nominations is Nov 3; selection decision is early December.
- COR PATR was released on Oct 2 – the TIG is reviewing the final version of the document to compare to their marked up version submitted back in early July
- The COPAG EC hosted a telecon on Oct 3 among the 3 PAG ECs and Paul Hertz, on the issue of trying to reclaim the Great Observatories vision during the 2020s, in the face of fiscal realities – while there was no earth-shattering conclusion about how to do that, a lot of valuable information was shared that will allow the ECs to continue this discussion with their respective communities
- Otherwise the 3 months since the last APAC meeting has been pretty quiet

COPAG Activities

- The COPAG EC has continued to track closely STDT activities through members who are on the respective teams:
 - **OST** - Lee Armus
 - **HabEx** - Paul Scowen
 - **LUVOIR** - John O'Meara
 - **Lynx** –Two EC members are part of SWGs - Joe Lazio and Suvi Gezari

COPAG Activities

- COPAG continues to have no open SAGs
- COPAG continues to have 3 open SIGs, 1 TIG
- All 3 SIGs have plans to hold community meetings at the January 2018 AAS Meeting in Washington, DC:
 - Mon Jan 8, 9am-12pm – SIG2 community meeting
 - Mon Jan 8, 9am-12pm – SIG3 community meeting
 - Mon Jan 8, 9am-12pm – TIG community meeting
 - Mon Jan 8, 1:30pm - the COPAG will be co-sponsoring a session at the AAS to allow Paul Hertz to address the combined membership of the PAGs
 - Mon Jan 8, 3pm-6pm - the COPAG community meeting will include STDT summary talks as well as presentations from all 3 candidate MIDEX teams
 - Tue/Wed Jan 9/10, 12:30-3:30pm – SIG1 community meeting

COPAG Activities

- On the questions asked of the APAC by the NAC in July:
 1. Does SMD R&A have an effective process to select high impact/high risk programs?
 2. Does SMD R&A have ability to select focused, interdisciplinary or inter-division investigations?
- The COPAG EC discussed this and had the following observations:
 - NASA/community has been naturally risk-averse, because resources are very limited so we don't want to take a chance on losing all that funding on something high risk, given costs e.g., detector development is always limited by funding
 - To enable high risk/high impact, we may need, as an example, to have part (10%?) of APRA funding designated as high risk – but that doesn't fabricate more \$\$
 - We need community input ... how much is okay to risk? If money removed from pot, people will be less likely to win an award, so less likely to propose.
 - Need to ask community:
 1. Would you support using some APRA funds for high risk, and
 2. What level? 10%? 25%?
 - On the question of interdisciplinary / interdivisional / crosscutting work - what about connections with Human Exploration or space construction or the cis-lunar station. Is the issue a lack of opportunity for funding these. One important question is "what comes out of Astrophysics for these? What is lost?"
 - How can we get input from our community - ask for input by a deadline? Possibly letters back before AAS, then plan to discuss at the AAS PAG mtg.

SIG1 - FIR Astronomy

J.D. Smith, U. Toledo - Co-Chair

- The Far-Infrared Science Interest Group (SIG #1) remains very active in connecting the community with ongoing and planned missions and programs in the FIR & submm.
- The "Future of far-infrared astronomy instrumentation" workshop held in March in Pasadena, co-organized by the FIR SIG, was initially aimed at the then upcoming SOFIA instrument call. The original intent was to produce a brief white paper describing the key conclusions from the workshop, but over the ensuing months the paper morphed into a more comprehensive document, resulting in ~60 pages and authored by many leading figures in the field covering a broad range of topics within FIR astronomy, including a comprehensive writeup on SOFIA, and specific suggestions for SOFIA instrumentation development. The paper has been submitted to JATIS as an invited review article and is available on the arxiv (<https://arxiv.org/abs/1709.02389>)
- The monthly webinar series are continuing with success, with recent contributions from SOFIA leadership, and other scientists and instrumentalists, including OST study team members.
- The FIG SIG organized community interests and provided detailed input for the Cosmic Origins technology prioritization process.
- A subcommittee of the FIG SIG has begun plans for a monthly "Far-infrared community newsletter", with the first issue expected soon.
- The FIG SIG is planning another joint meeting at the upcoming Winter 2018 AAS for the FIRSIG community, working with OST study team leads to coordinate with their planned activities.
- Four members of the FIRSIG leadership council are rotating off term, and new members were recently added: Jeyhan Kartaltepe, Jens Kauffmann, Enrique Lopez-Rodriguez, Elizabeth Mills and Michael Zemcov
- Follow our activities at <http://tinyurl.com/firsig>

SIG2 - UV-Visible Astronomy from Space

Paul Scowen, ASU - Chair

- The UV-Visible SIG intends to meet at the upcoming Winter AAS meeting in Washington, DC
- The focus of the efforts at this meeting and throughout the Fall leading up to it will be on the capabilities being reported for the UVO instruments on both the LUVOIR and HabEx mission concepts
- Using the reported ETCs and throughput curves, as well as the observing modes being designed into the instruments, we will solicit science programs from the community for these instruments to help define real examples of how such missions might work – to help define Design Reference Mission (DRM) documents
- Both missions have strong General Astrophysics portfolios and the instrumentation, in both case, consist of wide field cameras and FUV spectrographs, although the specific capabilities differ depending on the science cases that drive their requirements.



Jet Propulsion Laboratory
California Institute of Technology

Cosmic Dawn Science Interest Group

Joseph Lazio

on behalf of the COPAG EC



Cosmic Dawn SIG

Primary Activities – Past 3 Months

Succession Planning

- **Moving toward structure similar to Far-IR SIG (SIG 2): Steering Committee + EC liaison**
 - **Elena Gallo (Univ. Michigan)**
 - **Adrian Liu (University of California, Berkeley)**
 - **Jonathan Pober (Brown Univ.)**
 - **Anže Slosar (Lawrence Berkeley National Laboratory)**
 - **Claudia Scarlata (Univ. Minnesota, *EC liaison*)**
 - **Joseph Lazio (Jet Propulsion Laboratory, California Institute of Technology, *EC liaison*)**

SIG Meeting at AAS 231st Meeting (National Harbor)

Engagement with the Flagship STDTs

- **Membership on the Far IR Surveyor**
- **Observing X-ray Surveyor activities**

Cosmic Dawn SIG

Cosmic Origins PAG

“We have learned much in recent years about the history of the universe, from the big bang to the present day. A great mystery now confronts us: When and how did the first galaxies form out of cold clumps of hydrogen gas and start to shine---when was our ‘cosmic dawn’?”

New Worlds, New Horizons

SIG focusses on science cases, observations, and technology development needed to address this "great mystery" of Cosmic Origins.

- **Membership is open to all.**

To be added to the mailing list, please contact Joseph Lazio (Joseph.Lazio@jpl.nasa.gov)

- **Website: <http://cd-sig.jpl.nasa.gov/>**

TIG – Technology Interest Group

Paul Lightsey (Ball) & Sarah Tuttle (UW)

- The TIG has been dormant since completing the technology review until now.
- Since the 2017 PATR has been released, the TIG members are reviewing it.
- The TIG is discussing the possibility of starting an activity to develop a matrix that catalogs relevant technologies with past and future missions. The intent is to provide the venue for the interaction among the technologists and the scientists.
- We are planning to discuss among the members that are present at the AAS meeting in January, and presumably would follow up with some telecons.

Actions Requested of the APAC

- No explicit actions requested

COPAG Future Activities

- Bi-weekly EC telecons will continue
- Continued dialogue and support of ongoing STDT activities
- Recruiting new EC candidates to replace four rotating off members and perhaps offer a few 1-yr service extensions
- Preparations for SIG community meetings at January 2018 AAS meeting